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MEMORANDUM

To:	Gary Miller U.S. Environmental Protection Agency	Date:	July 25, 2011 <u>Revised: August 4, 2011</u>
From:	Jennifer Sampson, Integral Consulting Inc. David Keith, Anchor QEA, LLC		
Cc:	March Smith and Andrew Shafer, McGinnes Industrial Maintenance Corporation Philip Slowiak, International Paper Company		
Re:	Addendum 2 to the Soil Sampling and Analysis Plan (SAP) for Residential Soil Sampling, San Jacinto River Waste Pits Superfund Site		

INTRODUCTION

This memorandum is the second addendum to the Sampling and Analysis Plan (SAP) for the Soil Study at the San Jacinto River Waste Pits (SJRWP) Superfund site (Site) (Integral 2010), and is submitted on behalf of International Paper Company (IPC) and McGinnes Industrial Maintenance Corporation (MIMC) (collectively referred to as Respondents), pursuant to the requirements of Unilateral Administrative Order (UAO), Docket No. 06-03-10, which was issued on November 20, 2009 (USEPA 2009a). The UAO requires Respondents to conduct a Remedial Investigation/Feasibility Study (RI/FS) for the Site.

This addendum to the Soil SAP (Integral 2010) was prepared in response to a letter from the U.S. Environmental Protection Agency (USEPA) (Miller 2011, pers. comm.), wherein USEPA directs IPC and MIMC to conduct soil sampling in residential areas near the Site. This addendum describes soil sampling at residential locations that will be identified by USEPA and the Respondents prior to initiation of the field event.

This addendum includes the objectives for residential soil sampling, describes the depth of samples, the soil analytes, and sampling and analysis methods. It also identifies the quality assurance and quality control (QA/QC) procedures that will be applied. Soil sampling and analyses described in this addendum will be conducted in full compliance with the Soil SAP

(Integral 2010) and related appendices (including the Field Sampling Plan, which is Appendix A to the Soil SAP).

STATEMENT OF THE PROBLEM

USEPA has directed the Respondents to determine the concentrations of polychlorinated dibenzo-*p*-dioxins (dioxins) and polychlorinated dibenzofurans (furans) in the soils of residential areas that are near the Site and that are within the 100-year floodplain (Figure 1). The purpose of the sampling is to address residents' uncertainty as to whether flooding events may have caused dioxins and furans originating from the waste impoundments to be carried to their properties.

ANALYSIS OF EXISTING INFORMATION AND SELECTION OF SOIL ANALYTES

Existing soil and sediment data from areas on or near the Site, that are closer to the Site than those areas being considered by USEPA for this residential soil sampling study, show that, in most locations, the concentrations of dioxins and furans are well below USEPA's interim preliminary remediation goal (PRG) for residential soil of 72 ng/kg toxic equivalent (TEQ) concentration (USEPA 2009b).

The only soil and/or sediment samples that exceed the USEPA interim PRG for residential soil are (i) samples located within the 1966 perimeter of the original waste impoundments, (ii) four sediment samples from the area between the Site waste impoundments and the upland sand separation area, or immediately to the north of this area, and (iii) one soil sample from 1 to 2 feet below the surface from the northeastern area of the upland sand separation area (Figure 2). TEQ concentrations in the soil drop significantly in areas outside of the 1966 impoundment perimeter and outside the area known to have been directly impacted by dredging and sand separation activities.

PROJECT ORGANIZATION, METHODS, AND QUALITY ASSURANCE PROCEDURES

Soil sampling and analyses described in this addendum will be conducted in full compliance with the Soil SAP (Integral 2010) and related appendices (including the Field Sampling Plan, which is Appendix A to the Soil SAP), in the context of the objectives and residential sampling locations relevant to this task. The Soil SAP describes the means to achieve all QA/QC requirements and documentation articulated by USEPA's guidance for preparation of

quality assurance project plans, and field sampling plans (USEPA 1998, 2001); these specifications will be applied to the collection, analysis, QA review, data management, and reporting of the information generated as described in this SAP addendum. Sampling personnel will comply with the overall Health and Safety Plan (HSP) (Anchor QEA 2009) and Addendum 3 to the overall HSP that is provided in the Soil SAP (Integral 2010, Appendix A, Attachment A-3).

All of the soil analytes, the method reporting limits, and method detection limits are listed in Table 1.

DATA QUALITY OBJECTIVES

This section provides a summary of the data quality objectives for the proposed residential soil sampling, inclusive of the objective of the task, analytical approach and sampling locations.

People living near this section of the San Jacinto River could potentially be exposed to dioxins and furans in soil via direct contact with soils (ingestion and dermal) or inhalation of airborne particulates if dioxins and furans originating from within the 1966 impoundment perimeter have been transported to soils in the floodplain (Figure 1). Ingestion of vegetables grown in residential soils may be a potential but minor pathway of exposure, because dioxins and furans in garden soil may adsorb to the skin of root vegetables (ATSDR 1998; Wild and Jones 1992), and may be ingested if the root vegetable is not peeled before eating. However, translocation of dioxins and furans from soil to above-ground portions plants and to the interior tissues in root crops is considered to be very limited or to not occur in most domestic plant species. Addressing uncertainties related to potential exposures to Site-related dioxins and furans in nearby residential soils requires information on concentrations of dioxins and furans in residential soils accessible to people. The residential soil study will address uncertainty and data gaps regarding concentrations of dioxins and furans present in soils in residential areas adjacent to the Site and directly contacted by people.

Sampling Objective

The residential soil sampling design was developed in consideration of the following:

- Uncertainty regarding whether the TEQ concentration in soils in residential areas near the San Jacinto River Waste Pits and within the San Jacinto River floodplain exceed the USEPA's draft interim residential PRG of 72 ng/kg TEQ
- If near surface soils (0 to 6 inches in depth) exceed 72 ng/kg, the sampling design was developed to determine the depth of soil at which human exposure to soils with greater than 72 ng/kg may occur within the tested residential areas.

The objective of sampling is to address the uncertainty at a soil depth that could potentially lead to exposure in residential areas.

Analytical Approach

To assess the potential for exposure within the residential areas near the river that could be impacted by floodplain soils, two residential areas were defined (Figure 1): an area to the west of the Site (between Meadowbrook and River Road), and a second area along the eastern shoreline of the San Jacinto River to the northeast of the waste impoundments. A total of 10 surface (i.e., 0 to 6 inches below grade) samples will be collected for analysis, with the contingency for up to and another co-located 20 samples of deeper soil (i.e., 6 to 12 inches and 12 to 24 inches below grade, respectively) if the corresponding surface sample result exceeds 72ng/kg. -will be archived (Table 3). The chemicals to be analyzed at all stations are the 17 toxic dioxin and furan congeners (Table 1), as stipulated by USEPA. The analytical methods will be consistent with those described in the Soil SAP (Integral 2010) and are provided in Table 2.

The residential soils will be compared with the interim PRG for residential soil TEQ value of 72 ng/kg (dry weight) and with the reference envelope value calculated on the basis of a site-specific background area study for which soils were previously collected and analyzed as discussed in the Soil SAP (Integral 2010). This will allow comparison of soil samples from residential soils with local background conditions. Reference envelope values are reported in the Preliminary Site Characterization Report (Integral and Anchor QEA 2011).

Sample Locations and Depth

Soil samples will be collected from 10 residential locations where access is granted by the property owner (Table 3). To be included in the sampling event, a residential property must be both within the 100-year floodplain (Figure 1), and be generally free of debris and

obstructions to soil sampling, and free of obvious soil impacts due to physical disturbance or sources of household chemicals such as crank case oil, paint, etc. Four aliquots from each sampled residence will be composited into a single sample from that residence. Locations will be randomly selected within each sampled property using a global positioning system (GPS) during the sampling event, but effort will be made to avoid stained or otherwise obviously affected soil (e.g., walkways, parking areas or driveways with crushed gravel or concrete), areas near burn barrels, fire pits and barbecues, and the four locations will be evenly spaced across the property to the extent practicable given these limitations. A USEPA representative will be present during sampling and will be consulted in the selection of the location for collection of each soil aliquot. The USEPA representative will also serve as liaison with residents during the sampling event.

A unique sample number will be assigned to each sample. Soil samples will be collected at ~~three depths,~~ 0 to 6 inches (0 to 15 cm). Contingency samples, if warranted, would be collected from, 6 to 12 inches (15 to 30 cm), and 12 to 24 inches (30 to 60 cm), consistent with other soil sampling performed for the RI. The 6 to 12 inch, and 12 to 24 inch samples will only be collected (during a separate mobilization) ~~be archived~~ and analyzed if the TEQ concentration in an associated surface sample (0 to 6 inches) exceeds the draft interim residential soil PRG of 72 ng/kg to determine the depth of soil exceeding the PRG. Depending upon the soil interval to be collected, the soil samples will be collected using either a stainless-steel shovel, trowel, or spoon; or stainless-steel hand auger or hand corer (Table 3). After the soil sample has been collected, any excess soil will be returned to its respective hole. If necessary, supplemental soil will be available to the sampling crew and will be used to supplement the original soil so that the hole is completely filled after sample collection is completed. If the station is covered by grass, then prior to sample collection, a small section of grass will be cut away and saved by the sampling team. Once the hole has been filled, the small grass square will be placed back on the soil surface, tamped down, and watered.

For each of these, all of the soil from within a specific depth interval (e.g., 0 to 6 inches) will be homogenized prior to removing aliquots for each analysis, as described in Section 2.1.3 of Appendix A to the Soil SAP (Integral 2010). Geographic coordinates of each sample location will be collected using a differential GPS at the time of sampling. Field QC samples will

include one field split per depth interval, three equipment filter wipes, one filter blank, and one Standard Reference Material. All other field and laboratory QA/QC procedures will be implemented as described by Integral (2010).

Rocks and other debris and gross vegetation will be removed from the sample prior to homogenization, and any such removals will be documented in the field log, as described in Section 2.1.3 of Appendix A to the Soil SAP (Integral 2010). Photographs of each composite sample, and of the subsampling locations within the sampled yard and sampling area, will be included in the project documentation.

Both planned surface and contingent subsurface samples ~~Only the composite of soils collected from 0 to 6 inches~~ will be analyzed for dioxins and furans; ~~other samples will be archived~~. At all sample locations, and for all depth intervals, sufficient mass of soil will be collected for the required analyses; ~~additional soil will be archived for possible future analysis~~.

Contingent ~~Archived~~ samples within a given residence will be collected and analyzed only if the TEQ concentration in the 0 to 6 inch interval within that residential property exceeds 72 ng/kg dry weight. Sample containers, preservation, and holding time requirements will be consistent with those described in the Soil SAP (Integral 2010) and are provided in Table 4.

Timing of Sampling and Reporting

USEPA and the Respondents will request access for sampling from multiple households upon approval of this addendum, first by letter, and then by door-to-door visits to households within the study area shown on Figure 1. Sampling will be conducted at 10 residences according to where USEPA and the Respondents are able to gain timely access. Samples will be collected within 15 days of USEPA and the Respondents obtaining all necessary access agreements for the residential sampling. Chemical analyses will be requested from the laboratory on an accelerated turn-around time. Unvalidated data are expected to be available within 2 weeks of sampling, and validated data will be available electronically within 3 weeks of sampling. A results report consisting of a table with results and a map showing sample locations will be provided to USEPA as soon as possible after validated data are available. It is anticipated that the data from this sampling event will be presented to USEPA in the Remedial Investigation report.

Sample Collection Matrix

Table 5 provides a checklist of samples for use in the field during sampling. It is analogous to Table A-3 in Appendix A of the Soil SAP (Integral 2010).

REFERENCES

- Anchor QEA, 2009. Health and Safety Plan San Jacinto River Waste Pits Superfund Site. Prepared for McGinnes Industrial Maintenance Corporation, International Paper Company, and U.S. Environmental Protection Agency, Region 6. Anchor QEA, Ocean Springs, MS.
- ATSDR, 1998. Toxicological profile for chlorinated dibenzo-*p*-dioxins. <http://www.atsdr.cdc.gov/>. Agency for Toxic Substances and Disease Registry, Division of Toxicology, Toxicology Information Branch, Atlanta, GA
- Integral, 2010. Sampling and Analysis Plan: Soil Study San Jacinto River Waste Pits Superfund Site. Prepared for McGinnes Industrial Maintenance Corporation, International Paper Company, and U.S. Environmental Protection Agency, Region 6. Anchor QEA, Ocean Springs, MS, and Integral Consulting Inc., Seattle, WA.
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Jacinto River Waste Pits Superfund Site Pasadena, Texas. International Paper Company, Inc. & McGinnes Industrial Management Corporation, respondents.

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